

ANA P. BARROS

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Education

- PhD University of Washington, Seattle, 1993
(Civil Engineering – major in Hydrology, minor in Atmospheric Sciences)
- MSc Oregon Graduate Institute of Science and Technology, OUSH, 1990
(Environmental Science and Engineering)
- MSc University of Porto, Portugal, 1988
(Hydraulics - Ocean Engineering)
- Diploma University of Porto, Portugal, 1985
(Civil Engineering, 5-year degree, double major in Structures and Hydraulics)

Professional Appointments

- 2015 - James L. Meriam Professor of Civil and Env. Engineering, Duke University
- 2013 - Professor, Earth & Ocean Sciences, Nicholas School of the Environ., Duke Univ.
- 2011 - Senior Fellow, Energy and Climate Partnership of the Americas, US Dep. of State
- 2011 - Director, Karsh International Scholars Program, OUSF, Duke University
- 2004 - Professor, Civil & Env. Eng., Pratt School of Engineering, Duke University
- 1999 - 2003 Associate Professor, Div. Eng. & Appl. Sciences, Harvard University
- 1998 - 1999 Associate Professor, Civil and Env. Eng., Penn State University
Faculty Affiliate Earth System Science Center, Penn State University
Environmental Resources Institute, Penn State University
- 1993 - 1998 Assistant Professor, Civil and Env. Eng., Penn State University
- 1990 - 1993 Research Assistant, Civil and Env. Eng. University of Washington, Seattle
- 1987 - 1990 Research Assistant, Env. Science and Eng., OUHS-OGI
- 1985 – 1987 Lecturer, Dept. of Civil Engineering, University of Porto
Research Associate, Institute of Hydraulics and Water Resources

Selected Honors and Awards

- Distinguished Professorship, Duke University, 2015
- NASA Group Achievement Award – GPM Post-Launch Team, 2015
- NASA GSFC Robert H. Goddard Award (GPM GV Team), 2015
Category of Exceptional Achievement in Science
- Fellow, American Geophysical Union, 2014
- AMS Sigma-Xi Distinguished Lecturer 2014-2015
- WIMEK Research Fellowship, 2013
- Editors' Citation for Excellence in Refereeing for Reviews of Geophysics- 2011

Fellow, American Meteorological Society, 2008
Senior Member, IEEE, 2004
Distinguished Lecturer, Texas A&M University, Spring 2003
George W. Merck Faculty Fellow, Harvard University, 1999-2003
NASA New Investigator Award- MTPE, 1996
National Science Foundation CAREER Award, 1995
Lorenz G. Straub Award, 1993
for most meritorious Ph.D. thesis in Hydraulics and related fields.
Science Scholarship, JNICT, 1991
EOS Global Climate Change Fellowship, NASA, 1990
Prize Foundation A. Almeida, 1985
Award for the top student graduating with the Diploma in Civil Engineering in Portugal

Research Interests

Orographic cloud and precipitation processes; rainfall microphysics; meteorology and hydrology of mountainous areas; regional aspects of the water cycle, climate change and variability; scaling issues in hydrometeorology; land-atmosphere interactions; vegetation dynamics; soils-vegetation-hydrology interactions in land-margin environments; remote-sensing (retrieval algorithms and data integration); environmental physics and transport phenomena in interface environments; predictability; hydrometeorological forecasting and information technology; risk assessment and life-line infrastructure; land-use and land-cover change and anthropogenic environmental change; engineering sustainability and adaptation. Sensors and sensing systems.

Professional Societies

American Society of Civil Engineers, 1994- (Professional Grade Member, 2000)
Institute of Electrical and Electronics Engineers, 2004- (Senior Member, 2004)
Portuguese Order of Engineers, 1986 – (Professional Civil Engineer Reg. No. 20807)
American Geophysical Union, 1987- (Fellow 2014)
Chi Epsilon, 1991
American Meteorological Society, 1991- (Fellow 2008)
European Geophysical Union, 1992
American Society for Engineering Education, 1993
American Water Resources Association, 1994
American Association for the Advancement of Science, 1997-

Service

Editorial Service

Associate Editor, Journal of Hydrology (Elsevier), 2000-2015
Chief Editor, AMS Journal of Hydrometeorology, 2007-2011
Scientific Editor, Meteorology and Hydrology, EGS-NHESS, 2000-2012

Editorial Board, Advances in Water Resources, 2004-2007

Editor, Hydrology and Earth Systems Science, 2004-2007

Earth Interactions, Editorial Advisory Board, 2001

Selected Service to US Governmental and International Organizations

NASA Earth Sciences Senior Review, 2015, 2013, 2011

GEWEX/WCRP, Hydroclimatology Panel, 2014-

NOAA National Severe Storms Laboratory Science Review Panel, 2015

DoE ARM Review committee, 2014

NSF PDM-HS Steering Committee, 2013 -2014

WMO- Task Team High Impact Weather Project, 2013-

Advisory Board, Lisbon Ph.D. School in Earth Sciences, 2013-2018

DoE ARM Science Board, 2013-2015

DoE CoV Office of Biological and Environmental Research, 2013

US National Hydrology Committee for the International Hydrology Programme 2006-2010

DoE CoV Office of Biological and Environmental Research, 2010

NOAA Cooperative Institute for Climate and Satellites, Affiliate, 2010-

NRC/BPA Committee on Radio Frequencies, 2007-2010

NRC/BASC Climate Research Committee, 2007-2010

NCAR CISL High Performance Computing Advisory Panel, 10/2007-9/2010

NAS/ Advisory Mission to the Government of Chile, September-October 2008

NASA Snow and Cold Processes Measurement Mission, Science Advisory Panel, 2007

NSF, Chair of Site Visit and Renewal Panel, National Center Earth Surface Dynamics, 2006

NRC/SSB, Committee for the Review of NASA Science Mission Directorate Science Plan, 2006

NRC/BASC GAPP review Committee, 2005

NRC/SSB, Committee on the Scientific Context for Space Exploration (2004-2005)

NRC, Space Studies Board, 2002-2005 (Exc. Com. 2004-2005)

NRC/BASC Sulphur Mountain Radar Committee 2004

NOAA-OGP Regional Reanalysis Science Advisory Committee, 2000 -
NASA- Earth System Satellite Program, Science Selection Panel, 2001, 2002
NOAA, Global and Climate Change Advisory Panel , 1997-2002
NRC, USGS Committee on Water Resources, 1996-2001
NASA Global Water and Energy Cycle Initiative Science Plan Working Group, 2001-
NASA Soil Moisture Working Group, 1999 -
NSF CMS-CAREER Assessment Committee, 1997-1998
CUAHSI, Executive Committee, CUAHSI, 2000-2001 (Founding Member)
Cambridge Public Schools – Science Advisory Committee, 2002
Research Panels - EU, NERC-UK, CREF-CA, and numerous NSF, NOAA and NASA research
proposal review panels

Selected Service to Professional Societies

AMS Fellows Committee, 2016-2019
ASCE Committee on Adaptation to Climate Change, 2011-
ASCE, Advisory Board, International Symposium on Weather radar and Hydrology, 2014
AAAS, Elected W Section Committee MaL, 2013-2016
AGU Horton Medal Committee, 2013-2014
AGU, Geophysical Research Letters, Editorial Board Search Committee, 2003-2006
AGU, Langbein Lecture Committee, 2009-2011
AGU, Precipitation Committee, 1993-2009
AGU, Hydrology Section Nomination Committee, 2011-2012
AGU, Large-Scale Field Experiments Committee, 2014-
AMS, Council Member (elected), 2002-2005
AMS, Planning Commission, 2005
AMS, Annual Meeting Program Committee, 2005-2008
AMS, Council Nominations Committee, 2005-2008
AMS, Ad-Hoc Committee on Public-Private Partnerships, 2003-2005
AMS, Hydrology Committee, 1995-1998, 2000-2003

AMS APT Committee on Integrated Water Resources, Co-Chair, 2011- 2014
AMS, Program Committee - 13th Conference on Hydrology, 77th Annual Meeting, 1997
AWRA Board Pennsylvania (1994-1996), President (1995)
Organizing Committee, KOS2013 Conference - Facets of Uncertainty,2013
Program Committee - 13th Conference on Hydrology, 77th Annual Meeting AMS, 1997.
Program Committee, 11th International Precipitation Conference, 2013
Program Committee, International Precipitation Conference, 2007, 2010
Chair, 7th International Precipitation Conference, (1998-2001)

Selected University Service

Duke University

Presidential Committee on Facilities & Environment, 2015-2018
Provost's Appointments, Promotion and Tenure Committee, 2012-2015
Provost's Global Priorities Committee, 2011-2013
Founding Director, Karsh International Scholars Program, 2011-
SHEP Faculty Advisor, 2007- 2012
President's Standing Committee on University Priorities, 2008-2010
Provost's Faculty Diversity Standing Committee, 2008-2011
Academic Council & Executive Committee, 2008-2010
Founding Director, Engineering Frontiers, FOCUS Program, 2005-2009
Dean's APT Committee, Pratt School of Engineering - 2006-2010
Dean Search Committee, Pratt School, 2007-2008
Dean Search Committee, Nicholas School, 2006-2007
Provost's Com. on Undergraduate Admissions & Financial Aid, 2006-2009
Engineering Faculty Council, 2005-2007
Various Search and APT Committees 2004-

Other

Faculty Council, Arts and Sciences, Harvard University

Graduate Faculty Council, Graduate School, Penn State University

WISE Faculty Advisor, Penn State University

Large Research Campaigns – MOHPREX 2001 (Lead PI); NAME (co-I), SMEX04 (co-PI), CLASIC 2007 (co-PI), TIGERZ/JAMEX09 (co-PI), IPHEX 2014 (Lead Scientist)

Seminars and Conference Presentations – Over three hundred invited and contributed seminars, key note talks and lectures at universities, government agencies, and professional conferences.

Peer-Reviewed Journal Publications [* advisee student or postdoc, \$senior PI and, or significant independent contribution in multi-author paper, + Graduate Advisor]

In Review

Tao*, J., Wu, D., Gourley, J., Zhang, S.Q., Crow, W., Peters-Lidard, C., and Barros, A.P., 2015: Operational Hydrological Forecasting during the IPHEX-IOP Campaign- Meet the Challenge. *J. Hydrology*, in review.

Kang, D.-H., Barros, A.P., Kim, E., 2015: Evaluating Multi-Spectral Snowpack Reflectivity With Changing Snow Grain Sizes. *IEEE TGRSS*, in review.

Pending Revisions

Tao*, J., and Barros, A.P., 2015a: IPHEX2014 Atmospheric Forcing Datasets for High-Resolution Hydrologic Modeling in Regions of Complex Terrain – Methodology and Evaluation of Impacts on Water and Energy Fluxes. *J. Hydrol.*, pending revisions.

Tao*, J., and Barros, A.P., 2015b: IPHEX2014 Landscape Attribute Data sets for High-Resolution Hydrology Modeling in Regions of Complex Terrain – Methodology and Evaluation of Impacts on Water and Energy Fluxes. *J. Hydrol.*, pending revisions.

Lin, X., Kidd, C., Tao*, J. and Barros, A.P., 2015: Comparisons of rain estimates from ground radar and satellite over mountainous regions. *J. Hydromet.*, pending revisions.

Accepted/In press/Published

Wilson*, A., and Barros, A.P., 2015: Landform Controls on Low Level Moisture Convergence and the Diurnal Cycle of Warm Season Orographic Rainfall in the Southern Appalachians, *J. Hydrol.*, accepted with minor revisions (submitted).

Nogueira*, M., and Barros, A.P., 2015: Transient Stochastic Downscaling of Quantitative Precipitation Estimates for Hydrological Applications. *J. Hydrology*,
DoI:10.1016/j.jhydrol.2015.08.041

- Sun*, X., and Barros, A. P., 2015: Impact of Amazonia evapotranspiration on moisture transport and convection along the eastern flanks of the Andes. *Q.J.R. Meteorol. Soc.*, DoI: 10.1002/qj.2615 .
- Dimri, A.P., Niyogi, D., Barros, A.P., Ridley, J., Mohanty, U.C., Yasunari, T., Sikka, D.R., 2015: Western Disturbance(s): a Review. *Reviews of Geophysics*, DoI:10.1002/2014RG000460.
- Duan*, Y., Wilson*, A.M., and Barros, A.P., 2015: Scoping a Field Experiment: Error Diagnostics of TRMM Precipitation Radar Estimates in Complex Terrain as a basis for IPHEX2014. *Hydrol. Earth Sys. Sci.*, 19,1501-1520 Doi:10.5194/hess-19-1501-2015.
- Angulo-Martinez*, M, and Barros, A.P., 2015: Measurement Uncertainty in rainfall kinetic energy and intensity relationships for soil erosion studies: an evaluation using PARSIVEL disdrometers in the Southern Appalachian Mountains. *Geomorphology*, 228, 28-40, DoI:10.1016/j.geomorph.2014.07.036.
- Nogueira*, M., and Barros, A.P., 2014: The non-convective/convective structural transition in stochastic scaling of atmospheric fields. *J. Geophys. Res- Atmos.*, 119, DoI: [10.1002/2014JD022548](https://doi.org/10.1002/2014JD022548).
- Sun*, X., and Barros, A.P., 2014: Isolating the Role of surface evapotranspiration on moist convection and cloud formation along the eastern flanks of the Andes using a quasi-idealized approach. *J. Atmos. Sciences*, DoI:10.1175/JAS-D-14-048.
- Band, L., McDonnell, J., Barros, A., Bejan, A., Burt, T., Dietrich, W., Emanuel, R., Duncan, J., Hwang, T., Katul, G. Kim, Y., McGlynn, B., Miles, B., Porporato, A., Scaife, C., Troch, P., 2014: Ecohydrological flow networks in the subsurface. *Ecohydrology*, 7,1073-1078.
- Erlingis*, J. M. and Barros, A.P., 2014: A case study of the role of daytime land-atmosphere interactions on nocturnal convective activity in the Southern Great Plains during CLASIC. *J. Hydromet.*, Vol.15, 5, 1932-1953, DoI:10.1175/jhm-d-14-00161.
- Lowman*, L. E.L., and Barros, A.P., 2014: Investigating Links between Climate and Orography in the central Andes: Coupling Erosion and Precipitation using a Physical-Statistical Model. *J. Geophys. Res- Earth Surface*, 119,1-32.
- Wilson*, A. M., and Barros, A.P., 2014: An investigation of warm rainfall microphysics in the Southern Appalachians: orographic enhancement via low-level seeder-feeder interactions. *J. Atmos. Sci.*, Vol. 5, No.5, 1783-1805.
- Barros, A.P., Duan*, Y., Brun*, J., Medina, M.A., 2014: Flood Nonstationarity in the SE and Mid-Atlantic Regions of the United States. *J. Hydrologic Engineering*, DOI:(ASCE)HE.1943-5584.0000955.
- Tao*, J. and Barros, A.P., 2014: Coupled Prediction of flood response and debris flows initiation during warm and cold season events in the Southern Appalachians, USA. *Hydrol. and Earth System Sciences*. DOI:10.5194/hess-18-1-2014.
- Sun*, X., and Barros, A.P., 2013: High resolution simulation of Tropical Storm Ivan (2004) in the Southern Appalachians: Role of Planetary boundary layer schemes and cumulus parameterization. *Q.J.R. Meteorol. Soc.*, DOI:10.1002/qj.2255.
- Nogueira*, M., Barros, A.P., Miranda, P., 2013: Multifractal properties of embedded convective structures in orographic precipitation: toward subgrid-scale predictability. *Nonlinear Processes in Geophysics*, 20, 1-17, DOI:10.5194/npg-20-1-2013.

- Tao*, J, and Barros, A. P., 2013: Prospects for Flash Flood Forecasting In Mountainous Regions- An Investigation of Tropical Storm Fay in the Southern Appalachians. *J. Hydrology*, DOI:10.1016/j.jhydrol.2013.02.052.
- Kang*, D.K., Barros^s, A.P., Dery, S..J., 2013: Evaluating Passive Microwave Radiometry for the Dynamical Transition from Dry to Wet Snowpacks. *IEEE TGRSS*, DOI: 10.1109/TGRS.2012.2234468.
- Brun*, J. and Barros, A.P., 2013: Mapping the Role of Tropical Cyclones on the Hydroclimate of the southeast United States: 2002-2011, *Int. J. of Climatology*, DOI:10.1002/joc.3703.
- Li, L., Li, W., and Barros, A.P., 2013: Summer precipitation variability over the Southeastern United States. *Climate Dynamics*, DOI:10.1007/s00382-013-1697-9.
- Brun*, J., and Barros, A.P., 2013: Exploring the Use of MODIS Vegetation Products to Monitor Hydroecological Impacts of Extreme Events in the Southeast United States. *Int. J. Remote Sensing*, 34:2, 519-544. <http://dx.doi.org/10.1080/01431161.2012.714088>.
- Shrestha*,P. and Barros^s, A. P., and Khlystov, A.,2012: CCN estimates from bulk hygroscopic growth factors of ambient aerosols during the pre-monsoon season over Central Nepal. *Atmospheric Environment*, doi: 10.1016/j.atmosenv.2012.10.042.
- Sun*, X., and Barros, A.P., 2012: The impact of forcing dataset on the high resolution simulation of Tropical Storm Ivan (2004) in the Southern Appalachians. *Monthly Weather Review*, doi: 10.1175/MWR-D-11-00345.1
- Wohl, E., Barros, A.P., Brunzell, N. , Chappell, N., Coe, M., Giambelluca, T., Goldsmith, S., Harmon, R., Hendrickx, J., Juvik, J., McDonnell, J., and Ogden, F., 2012: A research vision for hydrology of the humid tropics: Balancing water, energy, and land use. *Nature Climate Change*, doi:10.1038/NCLIMATE1556.
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- Brun*, J., Shrestha*, P. , Barros^s, A.P., 2011: Aerosol runup along the Himalayan range. *Atmospheric Environment*, 45,6382-6392.
- Testik*, F., Barros, A.P., Bliven, L., 2011: Toward a Physical Characterization of Raindrop Collision Outcomes. *J. Atmos. Sci.*, doi: 10.1175/2010JAS3706.1.
- Shrestha* P., Barros^s, A.P., Khlystov A., 2010: Chemical composition and aerosol size distribution of the middle mountain range in the Nepal Himalayas during the 2009 pre-monsoon season, *Atmospheric Chemistry and Physics*, doi:10.5194/acp-10-11605-2010.

- Kang,* D.H., and Barros, A. P., 2010: Introducing an L-band Snow Sensor System for In Situ Monitoring of Changes in Water Content - Full-System Testing. *IEEE TGRSS*, Vol. 49, Issue:4; doi: 10.1109/TGRS.2010.2072786 .
- Shrestha*, P., and Barros, A.P., 2010: Joint Spatial Variability of Aerosol, Clouds and Rainfall in the Himalayas from Satellite Data, *Atmos. Chemistry and Physics*, 10,1-13.doi:10.5194/acp-10-1-2010.
- Prat *, O., and Barros, A.P., 2010b: Assessing satellite-based precipitation estimates in the Southern Appalachian Mountains using raingauges and TRMM PR. *Adv. Geosci.*, 25, 143–153.
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- Barros, A.P., 2010: Reply to comment by Qingyun Han on “Metrics to describe the dynamical evolution of atmospheric moisture: Intercomparison of model (NARR) and observations (ISCCP)” by Tao and Barros (2008). *J. Geophys. Res.*, 115, D14125, doi:10.1029/2009JD013562.
- Prat*, O., and Barros, A. P., 2010: Ground Observations to Characterize the Spatial Gradients and Vertical Structure of Orographic Precipitation – Experiments in the Inner Region of the Great Smoky Mountains , *J. Hydrology*, doi:[10.1016/j.jhydrol.2010.07.013](https://doi.org/10.1016/j.jhydrol.2010.07.013).
- Sun*, X., and Barros, A.P., 2010a: “An Evaluation of the Statistics of Rainfall Extremes in Raingauge Observations, and Satellite-based and Reanalysis Products Using Multifractals”, *J. Hydromet.*, doi:10.1175/2009JHM1142.1
- Yildiz*, O. and Barros, A.P., 2009. Evaluating spatial variability and scale effects on hydrologic processes in a midsize river basin. *Scientific Research and Essays*, 4(4): 217-225.
- Tao*, K, and Barros, A.P., 2009: Fractal Downscaling of Satellite Precipitation Products for Hydrometeorological Applications. *J. Atmos. Oceanic Technol.*, Vol. 27, doi: 10.1175/2009JTECHA1219.1
- Prat*, O., and Barros, A.P., 2009: Exploring the transient behavior of Z-R relationships- Implications for Radar Rainfall Estimation. *J. Applied Meteor. and Clim.*, Vol. 48 (10), 2127-2143.
- Giovanettonne*, J.P., and Barros, A.P., 2009: Probing Regional Landform Controls of Cloudiness and Precipitation in the Central Andes Using Satellite Data. *J. Hydrometeorology*, Vol. 10, 167-182.
- Barros, A.P., and Tao*, K., 2008: A Space-Filling Algorithm to Extrapolate Narrow Swath Instantaneous TRMM Microwave Rain Rate Estimates Using Thermal IR Imagery. *J. Atmos. Oceanic Technol.*, Vol. 25, No.11, 1901-1920.
- Barros, A.P., Pratt*, O., Shrestha*, P., Testik*, F., and Bliven, L., 2008: Revisiting Low and List (1982): Evaluation of Raindrop Collision Parameterizations Using Laboratory Observations and Modeling. *J. Atmos. Sci.* , Vol. 65, No. 9, 2983–2993.

- Prat*, O., Barros, A.P., and Williams, C., 2008: An intercomparison of model simulations and VPR estimates of the vertical structure of warm stratiform rainfall during TWP-ICE. *J. Applied Meteor. and Clim.*, Vol. 47, No. 11, 2797–2815.
- Tao*, K., and Barros, A.P., 2008: Metrics to describe the dynamical evolution of atmospheric moisture: Intercomparison of model (NARR) and observations (ISCCP), *J. Geophys. Res.*, 113, D14125, doi:10.1029/2007JD009337.
- Giovanettone*, J.P., and Barros, A.P., 2008: A Remote Sensing Survey of the Role of Landform on the Organization of Orographic Precipitation in Central and Southern Mexico. *J. Hydrometeorology*, doi:10.1175/2008JHM947.1.
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- Bhushan*, S., and Barros, A.P., 2007: A Numerical Study to Investigate the Relationship Between Moisture Convergence Patterns and the Spatial Distribution of Orographic Precipitation Features from TRMM in Central Mexico. *J. of Hydromet.*, **8**, 1264-1284.
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- Simoes, S., and Barros, A.P., 2007: Regional Hydroclimatic Variability and Brazil's 2001 Energy Crisis. *Management of Environmental Quality*, Vol. 18(3), 263-273.
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- Chiao*, S., Barros, A.P., 2007: A Numerical Study of the Hydrometeorological Dryline in Northwest India During the Monsoon, *J. Met. Soc. Japan*, Vol. 85, Special Issue, 1-25.
- Yildiz*, O., and Barros, A.P., 2007: Elucidating Vegetation Controls on the Hydroclimatology of a Mid-Latitude Basin. *J. Hydrology*, 333, 431-448, doi:10.1016/j.jhydrol.2006.09.10.
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- Wu* , S., Bras., R., and Barros, A.P., 2006: Sensitivity of Chanel Profiles to Precipitation Properties in Mountain Ranges, *J. Geophys. Res. – Earth Surface*, 111, F01024, doi:10.1029/2004JF000164.
- Barros, A.P., Chiao*, S., Lang*, T.J., Putkonen, J., and Burbank, D., 2006: From Weather to Climate – Seasonal and Interannual Variability of Storms in the Himalayas. *Tectonics, Climate and Landscape Evolution*, GSA Special Paper 398, 17-38, doi:10.1130/2006.2398(02).

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- Gebremichael*, M, and Barros, A.P., 2005: Evaluation of MODIS Gross Primary productivity (GPP) in the Tropics During the Monsoon. *Remote Sensing of the Environment*, doi:10.1016/j.rse.2005.10.009.
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- Magagi*, R. ,and Barros, A.P., 2004: Latent Heating of Rainfall During the Onset of the Indian Monsoon Using TRMM-PR and Radiosonde Data. *J. Applied Meteorology*, Vol. 43., No.2, 328-349.
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- Kim*, G. and Barros, A.P., 2002b: Downscaling of Remotely-Sensed Soil Moisture with a Modified Fractal Interpolation Method Using Contraction Mapping and Ancillary Data. *Remote Sensing of the Environment*, Vol. 83, 400-413.
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- Kim*, G., and Barros, Ana P., 2002a: Space-Time Characterization of Soil Moisture From Passive Microwave Remotely Sensed Imagery and Ancillary Data. *Remote Sensing of the Environment*, Vol. 81,393-403.
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Peer-Reviewed Book Chapters

- Barros, A.P., 2013: Orographic Precipitation, Freshwater Resources, and Climate Vulnerabilities in Mountainous Regions. In *Climate Vulnerability: Understanding and Addressing Threats to Essential Resources*. Elsevier Inc., Academic Press, 57-78pp.
- Yildiz*, O., and Barros, A.P., 2005: Climate Variability and Hydrologic Extremes – Modeling the Water and Energy Budgets in the Monongahela River Basin. *Climate and Hydrology in Mountain Areas*. de Jong, C., Collins, D., and Ranzi, R. (Eds.), Wiley(Pub.), 303-318.
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Peer-Reviewed Proceedings

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- Barros, A.P., 2007a: Long-Lead Forecasts of Extreme Events for Water Resources Management. Proceedings of the International Workshop on Advances in Hydroinformatics, 4-7 June 2007, Niagara Falls, Canada, Paper 13B3, 1-7pp. (Invited).
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- Barros, A.P., and Gordon*, S.J., 2002: Assessing the linkages among climate variability, land-use change, and the sedimentary regime of the Upper Chesapeake Bay. *Proceedings Coastal Environment 2002*, WIT Press (Pub.), 183-192.
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Broadly Peer-Reviewed Commissioned Papers/White Papers/Committee Reports

- Olsen, J. Rolf, Ayyub, B.M., Barros, Ana P., Lei, Wayne, Lombardo, F., Medina, Miguel, Samaras, Constantine, Smith, Orson, P., Stakhiv, Eugene Z., Tan, Jonatahan, Vison, Walker, Dan, and Wright, Richard., 2015: Adapting Infrastructure and Civil Engineering Practice to a Changing Climate. Prepared by the Committee on Adaptation to a Changing Climate (CACC) of the American Society of Civil Engineers (ASCE), 89 pp.
<http://dx.doi.org/10.1061/9780784479193>.

- Barros, A.P. 2010: Perspectives in Environmental Monitoring. *Assessment paper for AAAS –NSF STC’s Review*, October 2010, 27p. (Invited)
- Barros, A.P., 2007b: Rainfall Parameters for Design Storms Under a Changing Climate. *Assessment Paper for the 1st and 2nd Workshops on Impact of Global Climate Change on Hydraulics and Hydrology and Transportation*, Center for Transportation and the Environ., NCSU and USDoT(Pub), Wash.,DC, March 29 2006, 40p. (Invited)

National Research Council, Several Reports WSTB, SSB, BASC

Non-Peer Reviewed Conference Proceedings

- Prat*, O, and Barros, A.P., 2009: Combining a Rain Microphysical Model and Observations: Implications for Radar Rainfall Estimation. 2009 IEEE Radar Conference, Paper 978-1-4244-2871-7/09IEEE, 4pp.
- Barros, A.P., 2008: Water for Food Production – Opportunities for Sustainable Land- Water Management Using Remote Sensing, IGARSS08, *IEEE CFP081GA-CDR*, Pg IV-271-274. (*Invited*)
- Brunsell, N. A., A. P. Barros and T. A. Rahn, 2008: Determination of the areal averaged fluxes in CLASIC: a synthesis of methodologies. 28th Conference on Agricultural and Forest Meteorology, 28 Apr-2 May, Orlando, FL. <http://ams.confex.com/pdfpapers/139089.pdf>
- Brun*, J., and Barros, A.P., 2008: Mapping the History of Environmental Impacts of Land-Falling Hurricanes in the Southeastern United States – A Demonstration for Isabel. IGARSS08, *IEEE CFP081GA-CDR*, Pg IV-355-358.
- Barros, A.P., (2004): On the Space-Time Patterns of Precipitation in the Himalayan range: a Synthesis. GAME CD ROM Publ. No. 11, T8APB19Oct04100318. (*Invited*)
- Carbone, R.E., A. Barros, C.A. Davis, and M.W. Moncrieff, 2003: Observing, Understanding and Predicting Warm Season Continental Rainfall. *Symposium on Observing and Understanding the Variability of Water in Weather and Climate/17th Conference on Hydrology*, Long Beach, CA, American Meteorological Society. (*Invited*)
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- Bindlish*, R., and Barros, A.P., 1999: Sub-Pixel Variability of Remotely Sensed Soil Moisture: An Intercomparison Study of SAR and ESTAR. *IGARSS99*, Vol.3, 1917-1920.
- Barros, A. P., 1994: Modeling Orographic Precipitation with Application to Weather Prediction and Climate Studies. *Proceedings of the Meeting of the Italian Society of Applied Meteorology on Atmospheric Physics and Dynamics in the Analysis and Prognosis of Precipitation Fields*, 250-253. (*Invited Key-Note Speaker*)

Research Reports/Science Plans

- Barros, A.P., Li*, W., Kang*, D.-H., Prat*, O., Shrestha*, P., Brunsell, N., and Rhan, T.A., 2013: Observations of Surface Fluxes and Boundary Layer Instability in the Southern Great Plains during CLASIC. Report EPL-2013-CLASIC-1, Environmental Physics Laboratory, EPL/Duke University (Pub.) 57pp.
- Nogueira*, M. and Barros, A.P., 2014: The Integrated Precipitation and Hydrology Experiment. Part III: High-Resolution Ensemble Rainfall Products Precipitation Datasets. Report EPL-2013-IPHEX-H4SE-3, EPL/Duke University (Pub.), 38pp.
<http://dx.doi.org/10.7924/G8MW2F2W>
- Tao*, J. and Barros, A.P., 2014a: The Integrated Precipitation and Hydrology Experiment. Part I: Quality High-Resolution Landscape Attributes Datasets. Report EPL-2013-IPHEX-H4SE-1, EPL/Duke University (Pub.), V.1., 60 pp.
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- Barros AP, Petersen W, Schwaller M, Cifelli R, Mahoney K, Peters-Liddard C, Shepherd M, Nesbitt S, Wolff D, Heymsfield G, Starr D. 2014. NASA GPM-Ground Validation: Integrated Precipitation and Hydrology Experiment 2014 Science Plan. EPL/Duke University (Pub.): 64pp. <http://dx.doi.org/10.7924/G8CC0XMR>.
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http://hmt.noaa.gov/field_programs/hmt-se/pdf/HMTSE_Science_Plan_Spring_2013.pdf
- Barros, A.P., and Lang*. T. J., 2003: *Exploring Spatial Modes of Variability of Terrain-Atmosphere Interactions in the Himalayas During Monsoon Onset*. Hydrosociences Report Series 03-001, Environmental Sciences and Engineering Program, Division of Engineering and Applied Sciences, Harvard University, 51 pp.
- Magagi*, R., and Barros, A.P., 2003: *Estimating the Latent Heating of Rainfall During the Onset of the Indian Monsoon Using TRMM-PR and Radiosonde Data*. Hydrosociences Report Series 03-002, Environmental Sciences and Engineering Program, Engineering and Applied Sciences, Harvard University, 56 pp.
- Barros, A.P., Bindlish*, R., and Rogowski, A.S., 2000: *Soil Hydrology and Spatial Variability – Perspectives on the Interpretation of Remotely Sensed Data*. Technical Report Series 00-002, Environmental Institute, College of Earth and Mineral Sciences, PSU, 65pp. (available upon request)
- Barros, A.P., and Colello*, J., 1998: Determination of Manning's Roughness Coefficient for Surface Runoff Flow on Crushed Stone. Final Report to Allegheny Power Systems, Environmental Resources Research Institute, PSU, 183pp. (available upon request)
- Barros, A.P, Knapton*, D., Wang, M.C., and Kuo, C.Y., 1996: *Runoff Curve Number Research*. Final Report to Allegheny Power Systems, Environmental Resources Research Institute, PSU, 170 pp. (available upon request)

- Barros, A.P., Kuligowski*, R., and Ostrowski, J.. 1996: Quantitative Precipitation Forecasting Using Neural Networks. Final Report to NOAA-UCAR, Environmental Resources Research Institute, 94pp. (available upon request)
- Barros, A.P., 1993: *Modeling of Orographic Precipitation with Multilevel Coupling of Land-Atmosphere Interactions*. Water Resources Series Technical Report No. 139, University of Washington, Seattle, 200pp. (Submitted to NASA) (available upon request)
- Barros, A.P., and F.F. Veloso-Gomes, 1987: *Study of Salt Intrusion in the Lima Estuary*. Report of the Institute of Hydraulics and Water Resources, U. Porto, Portugal, 125pp. (Submitted to General Directorate for Water Resources and Coastal Zones, Secretary of State of the Environment and Natural Resources) (available upon request)

Data Sets

<http://iphex.pratt.duke.edu>

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<http://hdl.handle.net/10161/8959>

Invited Seminars and Invited Conference Talks (2004 – 9/2015)

Overall more than 300 presentations; 60+ invited key-note lectures, conference talks and seminars nationally and internationally since 2010. Several interviews including BBC, NPR, and multiple newspapers. Conference contributions not listed.

2015

- Barros, A.P., 2015 – Once in a Million Years- Extreme Events and Risk at the Climate-Engineering Nexus. University of Hawaii at Manoa, Feb 3th and University of Hawaii at Hilo, Feb 5th.
- Barros, A.P., 2015 - Once in a Million Years- Extreme Events and Risk at the Climate-Engineering Nexus. Sigma XI – Headquarters (RTI), March 5th.
- Barros, A.P., 2015 – Moorea IDEA, Hyper-Resolution Terrestrial Modeling of the Water Cycle, ETH-Zurich, March 9th.
- Barros, A.P., 2015 – Once in a Million Years- Extreme Events and Risk at the Climate-Engineering Nexus. Mercer University, Georgia, March 27th.

- Barros, A.P., Nogueira M., and Sun, X., 2015 - Transient Scaling Behavior and Predictability of Atmospheric Moisture, Clouds and Precipitation. European Geophysical Union, Voyage Across Scales Union Symposium, Invited Talk, April 15th.
- Barros, A.P., 2015 - Once in a Million Years- Extreme Events and Risk at the Climate-Engineering Nexus. Northern Illinois University, April 30th.
- Barros, A.P., 2015 – The Coupled Human-Natural Systems Footprint on the Climatology of Extreme Events – Land Use Change, Climate and Flood Nonstationarity in the SE and Mid-Atlantic US, ASCE-EWRI Municipal Water Infrastructure Symposium, May 21st.
- Barros, A.P., 2015 – Rainfall Physics across Scales - From Aerosol Activation to Raindrop Dynamics. Leiden University, Lorentz Center, July 1st.
- Barros, A.P., 2015 - IPHEX 2014, The Integrated Precipitation and Hydrology Experiment, A Global Precipitation Mission Measurement Ground Validation Field Campaign in the Southern Appalachians – Update. NASA PMM Science Meeting, Maryland, July 15th.
- Barros, A.P., 2015 – Extremos Climáticos, Recursos Hídricos y Adaptación, Ministry of Environment and Energy (MINAE) and Technical University (UTN), San José, Costa Rica, July 30th.
- Barros, A.P., 2015- How Andean Forests Regulate the Regional Water Cycle- The Role of Evapotranspiration on Precipitation Processes. Andes Amazon Biodiversity Conservation- BIOCON Peru, Lima, Peru, October 15-18.
- 2014**
- Barros, A.P., and Petersen, W., 2014 - The Integrated Precipitation and Hydrology Experiment in the Southern Appalachians- Observations and Modeling, International Symposium on Weather Radar and Hydrology, April 7th-9th, Washington D.C. (Invited).
- Barros, A.P., 2014 - Understanding Climate Processes, Land-Cover Land-Use Change, and Extremes -- Toward Smart Sustainability. NCCU, April 24th, Durham, NVC.
- Barros, A.P., 2014 - Unraveling Organized Complexity at the Land-Atmosphere Interface– Vegetation Controls on Regional Precipitation and Implications for Environmental Governance, May 9th. Northwestern University, Evanston IL.
- Barros, A.P., 2014 - Overview of Climate and Extremes Research. EPA Climate Modeling Consortium Workshop, EPA-RTP, May 12th.
- Barros, A.P., 2014 – IPHEX-The Score Card: Overview and Preliminary Findings, NASA PMM Science Meeting, Baltimore MD, August 4th-8th.
- Barros, A.P., 2014 - Microphysics of Orographic Precipitation and Vegetation Controls of Convection in the Andes, Universidad Nacional Autonoma de Mexico (UNAM), August 1, Mexico City, Mexico.
- Barros, A.P., 2014 – Synopsis of Ongoing Climate and Hydrology Research, Argonne National Laboratory, ESD, September 30th, Chicago- IL.
- Barros, A.P., and many others, 2014 – IPHEX2014 – Observations of Orographic Processes in the Southern Appalachians. AGU Fall Meeting, Session on Global Precipitation Measurement, Validation and Applications, San Francisco CA, December 14-19.
- Barros, A.P., and many others, 2014 - The GPM GV Integrated Precipitation and Hydrology Experiment (IPHEX) in the Southern Appalachians – Focus on Water Cycle Processes. AGU Fall Meeting, Session on Large Scale Field Experimentation and Networks, San Francisco CA, December 14-19.

2013

- Shrestha, P., Barros, A.P., Khlystov, A., and Wilson, A., 2013: Pre-Monsoon Aerosol-Cloud-Rainfall Interactions in the Central Himalayas due to Regional-Scale Pollution in the Indo-Gangetic Plains. AMS 2014 Annual Meeting, 5th Symposium on Aerosol-Cloud-Rainfall Interactions. J44.4. (Invited)
- Barros, A.P., Tao, J., Nogueira, M., and Lowman, L., 2013: On the Space-Time Organization of Precipitation and Hydrologic Response in Mountainous Regions - Examining Opportunities for Improving the Predictability of Postwildfire Floods and Debris Flows. AGU Chapman Conference on Synthesizing Empirical Results to Improve Predictions of Post-Wildfire Runoff and Erosion Rates. 25-31 August 2013, Estes Park, Colorado. (Invited)
- Barros, A.P., 2013: Hydrologic Extremes – Flash floods turn into floods that turn into great floods. Wageningen University, June 24.
- Barros, A.P., 2013: Emergent Pathways of Predictability – The Diurnal Cycle and the Role of Landform and Landcover on the Organization of Moist Processes at Multiple Scales. Workshop on Land Surface Modeling in Support of NWP and Sub-Seasonal Climate Prediction. George Mason University, 5-6 December. (Invited)
- Barros, A.P., 2013: Aerosol-Cloud-Rainfall Interactions and the Role of Landform in Freshwater Harvesting - Observations and Modeling in Mountainous Regions. Notre Dame University, February 26.
- Barros, A.P., 2013: Toward a Science Framework for Water Smart Mountain Landscapes – Observing and Modeling Water Transactions at the Climate- Biodiversity-People Nexus. Northwestern University, October 25.
- Barros, A.P., 2013: Views on Interdisciplinary Research. NCSU MEAS Graduate Student Symposium, August 19. (Key-note Speaker)
- Barros, A.P., 2013: IPHEX2014- The Integrated Precipitation and Hydrology Experiment 2014. A Global Precipitation Mission Measurement Ground Validation Field Campaign. NASA PMM Science Meeting, Maryland.
- Barros, A.P., and Kang, D.-H., 2013: Detecting transient melt and monitoring SWE evolution using Passive Microwave Sensing. ASCE ISCORD 2013, Anchorage Alaska, June 3. (Invited)
- Barros, A.P., and Petersen, W., 2013: IPHEX2014- The Integrated Precipitation and Hydrology Experiment 2014. A Global Precipitation Mission Measurement Ground Validation Field Campaign. 6th International Workshop for GPM Ground Validation, Rome, Italy, November 7. (Invited)
- Barros, A.P., Miller, D., Petersen, W., and Cifelli, R., 2013: IPHEX2014- The Integrated Precipitation and Hydrology Experiment 2014. A Global Precipitation Mission Measurement Ground Validation Field Campaign. NPS Great Smoky Mountains Annual Colloquium, March 21.
- Barros, A.P., 2013: Cambios Climáticos y Análisis de Variabilidad y Incertidumbre para la Gestión Sostenible de Cuencas de Montaña. Aula Magistral, Universidad Nacional de San Agustín, Arequipa, Peru, March 18. (Invited)
- Barros, A.P., 2013: Cambios Climáticos y Análisis de Variabilidad y Incertidumbre para la Gestión Sostenible de Cuencas de Montaña. Alcaldía de Chuquibamba, Arequipa, Peru, March 20. (Invited)

Barros, A.P., 2013: Integración de Sistemas de Observación y Modelación para Predecir Desastres “Naturales” y Diseñar Estrategias de Adaptación al Cambio. Autoridad Nacional Del Agua, Lima, Peru, March 21. (Invited)

Barros, A.P., 2013: El Nexo Agua-Energía-Desarrollo: Riesgos Naturales y Interacciones Entre Infraestructura, Clima y Paisaje en un Marco de Adaptación a Múltiples Escalas. Keynote Speaker, World Water Day, 75th Anniversary, SENHAMI, Lima, Peru, March 22. (Invited)

2012

Barros, A.P., 2012: Climate, Precipitation, Landform and Freshwater Resources - Riding with the Clouds Atop Mountains Everywhere – RPI, May14-15, Troy, NY.

Barros, A.P., 2012: Topic 5 – The key uncertainties and data limitations/needs for hydrometeorological applications and management of extremes. DoE Water Cycle Workshop, September 24-26, Washington DC

Barros, A.P., 2012: Topic 1 – Multiscale organization of atmospheric and terrestrial moisture fluxes in mountain landscapes. DoE Water Cycle Workshop, September 24-26, Washington DC.

Barros, A.P., 2012: From Summit to Sea - Mapping the Hydrometeorology and Surface Climate of Global Mountain Landscapes. JPL, October 4, Pasadena, CA.

Barros, A.P., 2012: Land-Atmosphere Interactions and Hydrometeorology of the Central Andes. ABERG Workshop, Kings Canyon National Park Lodge, October 2, CA.

Barros, A.P., 2012: Monitoring and Modeling the Water Cycle at Multiple Scales- Getting It Right for the Right Reasons. NOAA GLERL Workshop, August 27-29, Muskegee, MI.

Barros, A.P., 2012: Mapping the Hydrometeorology and Surface Climate of Global Mountain Landscapes. Georgia Tech, EAS, March 28-29, Atlanta, GA.

Barros, A.P., 2012, and many others: The Southern Appalachians Precipitation Measurement and Hydrology Project- A prototype for Middle Mountains Everywhere. AGU2012 (Invited)

Barros, A.P. and Erlingis, J. 2012: Model Physics and Referential Indeterminacy in Multiscale Soil- Precipitation Feedbacks. AGU2012 (Invited)

Barros, A.P., 2012: From Precipitation Regimes to Precipitation Extremes to Floods – Understanding and assessing risk in changing landscapes. North Carolina Floodplain Managers Conference, Asheville, NC, October 24-26, 2012. (Invited)

Brun*, J. and Barros, A.P., 2012: Contribution of Tropical Cyclones to the Southeast US Hydrology. GSA 2012, 4-7 November, 2012. (Invited)

Barros, A.P., 2012: Hydrometeorology Grand Challenge, Precipitation processes from Understanding to Predictability. Krishnamurti Symposium. (Invited)

2011

Barros, A.P.: 2011: Observing Precipitation in Mountainous Regions - Making Ado with Imperfect Measurements. IUGG Gen. Assem., July, Melb. Australia. (Invited)

Barros, A.P., Brun*, J., Tao*, J., Wilson*, A., Jeuland*, M., 2011: System-level Auditing of Hydrometeorological Vulnerabilities in the SE US. AGU2011, GC14-07A. (Invited).

Barros, A.P., 2011: Landform Modulation of Atmospheric Moisture - Emergent Pathways of Hydrometeorological Predictability. AGU, Fall Meeting, NG51H-01 (Invited)

Barros, A.P., 2011: Process Studies of Hydrometeorology and Hydrology in the Great Smokies Seminar, Marine, Earth and Atmospheric Sciences, NCSU, February 14.

Barros, A.P., 2011: Water Cycle Audits in the Tropics. Tropical Hydrology Workshop, Hawaii, US Army Research Office, March 2011. (Invited Speaker)

Barros, A.P., 2011: Ground Validation in Regions of Complex Topography - Mapping the 4D Structure of Rainfall: Implications for Hydrologic Services and Water Resources Management, NASA PMM Science Meeting, November, Denver, CO. (Invited)

Barros, A.P., 2011: Mapping and Exploring Water Cycle Extremes and Nonlinearities from Data. First Workshop on Understanding Climate Change from Data, August 2011, NSF-University of Minnesota. (Invited)

Barros, A.P.: Rainfall Extremes and Climate Change. ASCE CCAC, June 2011.

2010

Barros, A.P., 2010: Sensors for Novel Physical Measurements. NSF-NNIN Workshop on Nano-Enabled Sensing Microsystems for Geosciences, University of Michigan, February 4-5. (Invited Speaker)

Barros, A.P., and Sun*, X., 2010: Using Dynamical Downscaling to Elucidate the Role of Orography in Modulating Tropical Storms in the Southern Appalachians. 10th International Precipitation Conference. (Invited).

Barros, A.P., 2010: Land-Atmosphere Interactions in the cloud forests of the western Andes. Annual Meeting ABERG.

Barros, A.P., 2010: GV in the context of water budget studies and hydrologic applications. 4th International GPM GV Workshop-Helsinki (Invited).

Barros, A.P., 2010: Mountain Hydrometeorology and Hydrology - Ongoing Research in the Great Smokies. Seminar, University of Georgia, October 19 2010.

2009

Barros, A.P., 2009: A Laboratory of Islands- Charles Darwin's Pacific Project, by Ian McCalman. Darwin Across the Disciplines Symposium, Duke University. (Invited Respondent.)

Barros, A.P., and Prat, O., 2009: Rainfall is a Transient: Shattering Bubbles and other Myths, or the Importance of Comprehensive Observations from the Laboratory to the Storm Environment (Invited), Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H23J-01.

Barros, A.P., Shrestha, P., and Sun, X., 2009: The Role of Landform, Land-Use and Land Cover in the Diurnal Cycle of Rainfall (Invited), Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H44D-01.

Barros, A.P., Sun, X., and Mackey, B., 2009: Challenges and Opportunities in Physically-Based Downscaling of Rainfall - Toward Hydrological Consequence. Geophys. Res. Abs., Vol. 11, EGU2009-10335. (Invited Oral Presentation)

Barros, A.P., Prat, O., Sun, X., Shrestha, P., and Miller.,D., 2009: Toward Characterizing the 4D Structure of Precipitation at the Headwater Catchment Scale in Mountainous Regions. Geophys. Res. Abs., Vol. 11, EGU2009-10302. (Invited Oral Presentation)

Barros, A.P., 2009: Opportunities for Environmental Sensing in the 21st Century - From Technology Limited to Science Driven Measurements. NSF Micro and Nano Systems 2040 Horizon Workshop, Denver, Colorado, June 21, 2009. (Invited Speaker)

Barros, A.P., 2009 : Precipitation Regimes and Hydrology in the Great Smoky Mountains From Science to the Management of Natural Resources. PMM Science Meeting, Salt Lake City, Utah, October 27, 2009. (Invited Oral Presentation)

Barros, A.P., 2009: The Great Smoky Mountains Precipitation and Boundary Layer Network. RENCIS SENSORS Workshop, Chapel Hill, February 2, 2009. (Invited)

Barros, A.P., 2009: Pushing the Frontiers Within: Earth Sciences and Global Environmental Monitoring. Seminar, NASA Goddard, July 29, 2009.

2008

Barros, A.P., 2008: A High-Resolution Integrated Modeling and Observational Network of Orographic Precipitation Processes and Hydrological Response in the Southeast Appalachians. 3rd International NASA/JAXA TRMM conference. (Invited)

Barros, A.P., 2008: Describing Vegetation Dynamics in Hydrological Models via Satellite-Data. AGU Spring meeting. (Invited)

Barros, A. P., 2008: Water for Food Production – Opportunities for Sustainable Land-Water Management Using Remote Sensing”. IEEE-IGARSS08. (Invited)

Barros, A.P., 2008: From Summit to Sea- Hydrometeorology of Extremes in North Carolina. RENCi-NSSL-HMT Workshop.

Barros, A.P., 2008: “A new L-band RF sensor for Measuring Snow water Equivalent. NSF Sensors Workshop, Notre Dame Univ. (Invited Speaker)

Barros, A.P., 2008: Back to the Future -Precipitation Extremes, Climate Variability, Environmental Planning and Adaptation. AGU, Fall Meeting 2008. (Invited Speaker)

Barros, A.P., 2008: Remote Sensing of the Water Cycle - Probing Land-Atmosphere Interactions in Mountainous Regions". Seminar, Universidad de Chile, Santiago.

Barros, A.P., 2008: Water For Food Production - Opportunities For Sustainable Land-Water Management Using Remote Sensing. ICOWR08. (Invited Speaker)

2007

Barros, A.P., 2007: Toward an Integrated Science Basis for Freshwater Prospecting and Harvesting. Workshop on Monsoon Climate Variability and Change, and Their Impacts on Water, Food, and Health in Western India. (Invited Speaker)

Barros, A.P., 2007: Orographic Precipitation Processes and Hydrology. NASA PMM Science Meeting . (Invited Speaker).

Barros, A.P., 2007: Long-Lead Forecasts if Extreme Events for Water Resources Management. International Workshop on Advances in Hydroinformatics. (Invited)

Barros, A.P., 2007: Hydro-Eco-Meteorological Processes in Mountainous Region., NCAR Joint NSF-NOAA OGP Mountain Hydroclimate Workshop. (Invited Speaker)

Barros, A.P., 2007: Prospecting for Freshwater- Hydro-Meteo-Bio-Geo-Physical Processes and Surface-Groundwater Interactions IUGG07. (Invited Speaker)

Barros, A.P., 2007: Evaluation of Raindrop Collision Parameterizations Using Laboratory Observations and Modeling, International Precipitation Conference 2007. (Invited)

Barros, A.P., 2007: Examining Sedimentary Patterns as Fingerprints of Climatic Variability in Coastal Watersheds and their Estuaries. Seminar, Old Dominion University.

Barros, A.P., 2007: From the Laboratory to the Storm Environment – Integrating Models and Observations of Rainfall Microphysics, Seminar, University of Maryland, Arms. Sci.

2006

Barros, A.P., 2006: Rainfall Parameters for Design Storms US DoT Workshop on Climate Change and Transportation. (Invited)

Barros, A.P., 2006: GPM Hydrometeorology and Extremes, NASA/JAXA/EUMETSAT Global Precipitation Mission International Conference. (Invited)

Barros, A.P., 2006: From Rainscapes to River Basins – Elucidating Rainfall Controls of Hydrological Variability and Change. Eur.Geophys. Union, Annual Meeting.(Invited)

Barros, A.P., 2006: Land-Atmosphere Interactions, Surface Heterogeneity, and the Strange Attractor of Rainfall. AGU, Fall Meeting, 2006. (Invited)

Barros, A.P., 2006: Landform and Controls of Precipitation in the Himalayas and Northern India Seminar, North Carolina State University.

2005

- Barros, A.P., 2005: “Engineering Design and Climate: Change and variability. Keck Center, NAS Workshop on Climate Change and Transportation. (Invited)
- Barros, A.P., 2005: “Climate Variability and Engineering Design – An Opportunity to Rethink Infrastructure in the context of Contemporary Challenges”. Water Resources and Environmental Engineering Symposium, NCSU. (Keynote Speaker)
- Barros, A.P., 2005: On the Space-Time Patterns of Precipitation in the Himalayan Range – a Synthesis. Seminar, Quaternary Research Center, Earth and Space Sciences, University of Washington.
- Barros, A.P., 2005: Observing, Understanding and Modeling Precipitation Processes in Complex Terrain - Lessons Learned in the Himalaya. Seminar, Department of Civil and Environmental Engineering, Penn State University.
- Barros, A.P., 2005: Observing, Understanding and Modeling Precipitation Processes in Complex Terrain - Lessons Learned in the Himalaya. Seminar, Department of Atmospheric Sciences, University of North Dakota
- Barros, A.P., 2005: “And What is There to be Gained, if we Never Question our Hydrologic Paradigms?” Reflections on Extreme Events and Mountain Hydroclimatology. AGU, Fall.

Selected Invited Talks and Presentations (prior 2005)

Invited Seminars (Cornell Univ.; Duke Univ.; Caltech; Johns Hopkins Univ.; Princeton Univ.; Univ. Iowa; Univ. Washington; Penn State University; Harvard Univ.; NASA-GSFC; Distinguished Lecturer 2003, Texas AM; MIT; Columbia University; Georgia Tech; Univ. Alberta; EPSON Meteo Center, Milan; Korean Met Office; Kyongpook Univ., Univ. Kyoto)

Invited Conference Talks (AGU 1992, 2001,2002, ESA 1994, ISAM 1994, Penrose 2003,SWE 2003, AMS 2003, AGU 2004)